

**WE CLAIM:**

1. A laser irradiation apparatus comprising:  
a light source producing a coherent beam;  
5 a first optical unit disposed in an optical path between said light source and a target workpiece; and  
a second optical unit disposed in an optical path between said first optical unit and the target workpiece;  
wherein said first optical unit is disposed such that an entry point on said  
10 second optical unit and a starting point of a pointing vector of the beam of said light source are mutually conjugated with respect to said first optical unit.
2. The laser irradiation apparatus as defined in Claim 1, wherein said second optical unit is an optical beam forming unit.  
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3. The laser irradiation apparatus as defined in Claim 2, wherein said optical beam forming unit is an optical element for making the intensity distribution of the beam uniform.
- 20 4. The laser irradiation apparatus as defined in Claim 1, wherein said first optical unit comprises at least two lenses.
5. The laser irradiation apparatus as defined in Claim 1, wherein said light source is a laser oscillator.  
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6. The laser irradiation apparatus as defined in Claim 1 further comprising at least a third optical unit in an optical path between said second optical unit and the target workpiece.

7. A laser irradiation apparatus comprising.  
a light source producing a coherent beam;  
a first optical unit disposed in an optical path between said light source and a  
target workpiece;  
5 a second optical unit disposed in an optical path between said first optical  
unit and the target workpiece; and  
a third optical unit disposed in an optical path between said second optical  
unit and the target workpiece;  
wherein said first optical unit focuses said coherent beam between said first  
10 optical unit and said second optical unit, and a focal point of said second optical unit and an  
entry point on said third optical unit are mutually conjugated with respect to said second  
optical unit.
8. The laser irradiation apparatus as defined in Claim 7, wherein said third  
15 optical unit is an optical beam forming unit.
9. The laser irradiation apparatus as defined in Claim 8, wherein said optical  
beam forming unit is an optical element for making the intensity distribution of the beam  
uniform.  
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10. The laser irradiation apparatus as defined in Claim 9, wherein said  
second optical unit comprises at least two lenses.
11. The laser irradiation apparatus as defined in Claim 9, wherein said light  
25 source is a laser oscillator.
12. The laser irradiation apparatus as defined in Claim 9 further comprising  
at least a fourth optical unit in an optical path between said third optical unit and the target  
workpiece.

13. A laser irradiation method comprising;  
producing a coherent beam from a light source;  
adjusting said coherent beam using a first optical unit and a second optical  
5 unit, said first optical unit being disposed in an optical path between said light source and the  
target workpiece, and said second optical unit being disposed in an optical path between said  
first optical unit and the target workpiece; and  
irradiating the beam to said target workpiece;  
wherein said first optical unit is disposed such that an entry point on said  
10 second optical unit and a starting point of a pointing vector of the beam produced from said  
light source are mutually conjugated with respect to said first optical unit.

14. The laser irradiation method as defined in Claim 13, wherein said second  
optical unit is an optical beam forming unit.  
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15. The laser irradiation method as defined in Claim 14, wherein said optical  
beam forming unit is an optical element for making the intensity distribution of the beam  
uniform.

20 16. The laser irradiation method as defined in Claim 13, wherein said first  
optical unit comprises at least two lenses.

17. The laser irradiation method as defined in Claim 13 further comprising  
adjusting the coherent beam using at least a third optical unit disposed in an optical path  
25 between said second optical unit and the target workpiece.

18. The laser irradiation method as defined in Claim 13, wherein said target  
workpiece is laser-machined in said irradiating the beam to said target workpiece.

19. A laser irradiation method comprising:  
producing a coherent beam from a light source;  
adjusting said coherent beam using a first optical unit, a second optical unit,  
and a third optical unit, said first optical unit being disposed in an optical path between said  
5 light source and the target workpiece, said second optical unit being disposed in an optical  
path between said first optical unit and the target workpiece and said third optical unit being  
disposed in an optical path between said second optical unit and the target workpiece; and  
irradiating the beam to said target workpiece;  
wherein said adjusting said coherent beam includes focusing said coherent  
10 beam between said first optical unit and said second optical unit using said first optical unit  
and wherein a focal point of said coherent beam and an entry point on said third optical unit  
are mutually conjugated with respect to said second optical unit.

20. The laser irradiation method as defined in Claim 19, wherein said third  
15 optical unit is an optical beam forming unit.

21. The laser irradiation method as defined in Claim 20, wherein said optical  
beam forming unit is an optical element for making the intensity distribution of the beam  
uniform.

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22. The laser irradiation method as defined in Claim 19, wherein said second  
optical unit comprises at least two lenses.

23. The laser irradiation method as defined in Claim 19, wherein said light  
25 source is a laser oscillator.

24. The laser irradiation method as defined in Claim 19 further comprising  
adjusting the coherent beam using at least a fourth optical unit disposed in an optical path  
between said third optical unit and the target workpiece.

25. The laser irradiation method as defined in Claim 19, wherein said target workpiece is laser-machined in said step of irradiating the beam to said target workpiece.